

# Christopher R. Culpepper

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## CAREER OBJECTIVE

To continue my career in Electrical or Computer Engineering: designing electronic hardware, working with RF devices, or creating embedded software, preferably in the aerospace or subsurface domain.

## EXPERIENCE

### *Electrical Engineer*

*October 2019 - Present*

FTL Labs Corporation, Amherst MA

- Designed and built large li-ion battery for underwater applications, designed with safety in mind
- Developed and implemented battery test plan for pressure, electrical, thermal and capacity
- Following a battery assembly incident, led the team in redesign for additional assembly safety
- Designed interface electronics, analog piezo load cell interface, COTS LED module dimmer
- Designed PCB to expand IO in a ruggedized product, solenoid drive, 4-20mA, protected IO
- Created RF chain to sample RADAR magnetron TX pulses
- Reverse engineered commercial laser diode driver to implement circuit
- Designed control loop to keep laser diode at constant optical power over temperature
- Designed an automated data collection system to treat jet fuel to test treatment efficacy

### *Senior Electrical Engineer (Previous Systems Engineer , Co-Op)*

*Coop 2013-2017, FT 2017-2019*

General Dynamics Mission Systems, Pittsfield MA

- Developed and executed evaluation and qualification tests for inherited hardware
- Performed integration and repair operations on legacy hardware
- Performed tasking at customer locations and pre-deployment locations
- Performed software and systems testing on high-integrity mission-critical software

### *Test Engineer Co-op*

*January 2016 - May 2016*

Space Exploration Technologies, Hawthorne CA

- Designed and built hardware to test bias-T HD cameras
- Created software to automate the creation of trouble reports

## EDUCATION

### *Bachelor of Science, Computer Engineering*

Rochester Institute of Technology, Rochester NY, Graduated May 2017

Digital Signal Processing

Data Communication and Networks

Digital System Design

Cyborg Theory

HW & SW Design for Crypto Applications

General Chemistry for Engineers

## PROJECTS

### *24 Hours of Lemons Racecar*

- Procured \$500 car, built it into an endurance racecar
- Designed and built roll cage, selected performance components

### *Yaesu VX-8 Battery*

- Designed, built and tested a battery for a handheld Amateur Radio
- Designed a PCB that features USB-C charging, balancing and temperature monitoring
- Designed a 3D printed case featuring compliant clips, light pipes and a tight internal layout

### *Wideband Oxygen Sensor Controller*

- Designed, built and programmed sensor controller that measured oxygen concentration
- Incorporated PID loops to keep a sensor at a constant temperature and oxygen concentration

### *Assembly Language Pong Game*

- Created a 1.5D Pong game for a school project in HCS12 assembly

### *Various Other Projects:*

Motorcycle Speedometer

Metal Melting Foundry

RIT Rocket Initiative Power Board

3D Printer Modifications

Race Car Data logger and Comms Board

Electric Fence Controller

## SKILLS & AWARDS

Eagle Scout

A+ Certified

### *Languages & Software:*

C

Kicad PCB Design Software

Linux

VHDL

Python

AutoIt Automation Scripting

OpenSCAD Parametric Modeling Software

Visual Basic for Applications (VBA)

DOORs Requirement Management

Networking Equipment Configuration

## PERSONAL INTERESTS AND HOBBIES

Amateur Radio Extra

3D Printing

Photography (Analog, digital)

Carbon fiber layup

Working towards pilot licence

Licked thing that was in space